

Remarks

Claims 1-11 and 16-24 are now pending in this application. Claims 1-12 and 16-23 are rejected. Claim 24 is newly added. Claims 5, 12-15 and 23 are canceled without prejudice, waiver, or disclaimer. Claims 1, 7, and 16 have been amended. No new matter has been added.

The rejection of Claims 1 and 7 under 35 U.S.C. § 102(b) as being anticipated by Sakashita (Unexamined Utility model specification JP,06-009355,U1) is respectfully traversed.

Sakashita describes a pair of metal bearings (2) and (3) that rotatably support a shaft (1). Metal bearings are held by an insulation holder (4). A yoke plate (5) extends into the inside of a through hole (4A). A bottom (2B) of the metal bearing (2) is brought in contact with an end surface (5D) of the yoke plate. The yoke plate may be grounded.

Claim 1 recites a bearing current reduction assembly comprising “a rotor shaft; an inner bearing cap substantially radially aligned with said rotor shaft, said inner bearing cap comprising an inner end, said inner end in close proximity to said rotor shaft; and a charge concentrator disposed on said inner end, said charge concentrator positioned between said rotor shaft and said inner end, and said charge concentrator comprising a sharp edge.”

Sakashita does not describe nor suggest a bearing current reduction assembly as recited in Claim 1. Specifically, Sakashita does not describe nor suggest a charge concentrator disposed on the inner end, where the charge concentrator is positioned between the rotor shaft and the inner end, and the charge concentrator includes a sharp edge. Rather, Sakashita describes a yoke plate that extends into the inside of a through hole. Sakashita also describes that the end surface of the yoke plate is brought in contact with a bottom of the metal bearing and that the yoke plate may be grounded. Accordingly, Sakashita does not describe nor suggest a charge concentrator disposed on the inner end, where the charge concentrator includes a sharp edge. For the reasons set forth above, Claim 1 is submitted to be patentable over Sakashita.

Claim 7 recites an electric motor assembly comprising “a motor housing; a stator mounted in said housing and comprising a bore therethrough; a rotor core rotatably mounted in said housing and extending through said stator bore; a rotor shaft extending through said rotor core; an inner bearing cap radially aligned with said rotor shaft, said inner bearing cap having an inner end and an outer end, said inner end in close proximity to said rotor shaft; and a charge concentrator disposed on said rotor shaft, said charge concentrator positioned between said rotor shaft and said inner end, said charge concentrator comprising a sharp edge, said charge concentrator separated from said inner bearing cap by a clearance configured to facilitate a current flow between said rotor shaft and said stator.”

Sakashita does not describe nor suggest an electric motor assembly as recited in Claim 7. Specifically, Sakashita does not describe nor suggest a charge concentrator disposed on the rotor shaft, where the charge concentrator is positioned between the rotor shaft and the inner end, the charge concentrator includes a sharp edge, and the charge concentrator is separated from the inner bearing cap by a clearance configured to facilitate a current flow between the rotor shaft and the stator. Rather, Sakashita describes a yoke plate that extends into the inside of a through hole. Sakashita also describes that the end surface of the yoke plate is brought in contact with a bottom of the metal bearing and that the yoke plate may be grounded. Accordingly, Sakashita does not describe nor suggest a charge concentrator disposed on the rotor shaft, where the charge concentrator includes a sharp edge, and the charge concentrator is separated from the inner bearing cap by a clearance configured to facilitate a current flow between the rotor shaft and the stator. For the reasons set forth above, Claim 7 is submitted to be patentable over Sakashita.

For at least the reasons set forth above, Applicant respectfully requests that the Section 102 rejection of Claims 1 and 7 be withdrawn.

The rejection of Claims 3-6 and 9-12 under 35 U.S.C. § 103(a) as being unpatentable over Sakashita in view of Newberg (U.S. Patent No. 4,710,037) is respectfully traversed.

Sakashita is described above. Newberg describes an endshield (2) that can be formed from an appropriately cast aluminum material with centrally disposed

ventilation slots (7) separated by integral ribs (8) which serve to support hub or cradle (9) having an opening (11) therein into which a rotor shaft of an electric motor can be extended (column 2, lines 34-40). The hub is truncated with the sides thereof sloping inwardly toward a motor on which the endshield is to be mounted (column 2, lines 41-44, Figures 2 and 3). A lower end of the hub is turned inwardly to provide a bearing support means in the form of an annular support lip (12) to receive and support an outer race (13) of an annular ball bearing member (14) (column 2, lines 44-48).

Applicant respectfully submits that the Section 103 rejection of Claims 3-6 and 9-12 is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Sakashita nor Newberg, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Sakashita with Newberg because there is no motivation to combine the references suggested in the cited art itself.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of

ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Sakashita teaches a yoke plate that extends into the inside of a through hole. Sakashita also teaches that the end surface of the yoke plate is brought in contact with a bottom of the metal bearing and that the yoke plate may be grounded. Newberg teaches the endshield that can be formed from an appropriately cast aluminum material and the hub whose lower end is turned inwardly to provide the bearing support means in the form of the annular support lip to receive and support the outer race of the annular ball bearing member. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicant requests that the Section 103 rejection of Claims 3-6 and 9-12 be withdrawn.

Moreover, Claim 5 has been canceled. Claims 3, 4, and 6 depend from independent Claim 1 which recites a bearing current reduction assembly comprising “a rotor shaft; an inner bearing cap substantially radially aligned with said rotor shaft, said inner bearing cap comprising an inner end, said inner end in close proximity to said rotor shaft; and a charge concentrator disposed on said inner end, said charge concentrator positioned between said rotor shaft and said inner end, and said charge concentrator comprising a sharp edge.”

Neither Sakashita nor Newberg, considered alone or in combination, describe or suggest a bearing current reduction assembly as recited in Claim 1. Specifically, neither Sakashita nor Newberg, considered alone or in combination, describe or suggest a charge concentrator disposed on the inner end, where the charge concentrator is positioned between the rotor shaft and the inner end, and the charge concentrator includes a sharp edge. Rather, Sakashita describes a yoke plate that extends into the inside of a through hole. Sakashita also describes that the end surface of the yoke plate is brought in contact with a bottom of the metal bearing and that the yoke plate may be grounded. Newberg describes the endshield that can be formed from an appropriately cast aluminum material and the hub whose lower end is turned inwardly to provide the bearing support means in the form of the annular support lip

to receive and support the outer race of the annular ball bearing member.

Accordingly, neither Sakashita nor Newberg, considered alone or in combination, describe or suggest a charge concentrator disposed on the inner end, where the charge concentrator includes a sharp edge. For the reasons set forth above, Claim 1 is submitted to be patentable over Sakashita in view of Newberg.

When the recitations of Claims 3, 4, and 6 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 3, 4, and 6 likewise are patentable over Sakashita in view of Newberg.

Claim 12 has been canceled. Claims 9-11 depend from independent Claim 7 which recites an electric motor assembly comprising “a motor housing; a stator mounted in said housing and comprising a bore therethrough; a rotor core rotatably mounted in said housing and extending through said stator bore; a rotor shaft extending through said rotor core; an inner bearing cap radially aligned with said rotor shaft, said inner bearing cap having an inner end and an outer end, said inner end in close proximity to said rotor shaft; and a charge concentrator disposed on said rotor shaft, said charge concentrator positioned between said rotor shaft and said inner end, said charge concentrator comprising a sharp edge, said charge concentrator separated from said inner bearing cap by a clearance configured to facilitate a current flow between said rotor shaft and said stator.”

Neither Sakashita nor Newberg, considered alone or in combination, describe or suggest a bearing current reduction assembly as recited in Claim 7. Specifically, neither Sakashita nor Newberg, considered alone or in combination, describe or suggest a charge concentrator disposed on the rotor shaft, where the charge concentrator is positioned between the rotor shaft and the inner end, the charge concentrator includes a sharp edge, and the charge concentrator is separated from the inner bearing cap by a clearance configured to facilitate a current flow between the rotor shaft and the stator. Rather, Sakashita describes a yoke plate that extends into the inside of a through hole. Sakashita also describes that the end surface of the yoke plate is brought in contact with a bottom of the metal bearing and that the yoke plate may be grounded. Newberg describes the endshield that can be formed from an appropriately cast aluminum material and the hub whose lower end is turned inwardly to provide the bearing support means in the form of the annular support lip to receive

and support the outer race of the annular ball bearing member. Accordingly, neither Sakashita nor Newberg, considered alone or in combination, describe or suggest a charge concentrator disposed on the rotor shaft, where the charge concentrator includes a sharp edge, and the charge concentrator is separated from the inner bearing cap by a clearance configured to facilitate a current flow between the rotor shaft and the stator. For the reasons set forth above, Claim 7 is submitted to be patentable over Sakashita in view of Newberg.

When the recitations of Claims 9-11 are considered in combination with the recitations of Claim 7, Applicant submits that dependent Claims 9-11 likewise are patentable over Sakashita in view of Newberg.

For at least the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 3-6 and 9-12 be withdrawn.

The rejection of Claims 8 and 16-23 under 35 U.S.C. § 103(a) as being unpatentable over Sakashita and Newberg, and further in view of Shirashi (U.S. Patent 4,515,417) is respectfully traversed.

Sakashita and Newberg are described above. Shirashi describes a stator (1), a rotor (2), a shaft (2a), a bearing (3), an electrically conductive end cover (4) attached to the stator, and a centrifugal contact point (7) which is attached to a protrusion (2c) of the shaft (column 2, lines 18-25). The centrifugal contact point is made of a resilient metal and has a curved shape, one end portion thereof being in contact with the end cover when a motor is standing still or rotating at low speeds (column 2, lines 25-29). The centrifugal contact point contacts the end cover when the rotary electric machine is at rest or is running at speeds close to rest, namely just at the moment of starting (Figure 3, column 2, lines 30-34). Therefore, an electric current i flows at the moment the shaft voltage is induced at the time of starting through the shaft, the protrusion, the contact, the cover, and the stator, thereby bypassing the bearing, and accordingly, no current flows through the bearing (column 2, lines 34-39). As the running speed of the shaft gradually increases, the curvature of the contact point decreases due to the centrifugal force (Figure 4, column 2, lines 39-41). That is, the contact point separates from the end cover, and the grounding circuit therethrough is broken.

Applicant respectfully submits that the Section 103 rejection of Claims 8 and 16-23 is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Sakashita, Newberg, and Shiraishi, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Sakashita with Newberg or Shiraishi because there is no motivation to combine the references suggested in the cited art itself.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Sakashita teaches a yoke plate that extends into the inside of a through hole. Sakashita also teaches that the end surface of the yoke plate is brought in contact with a bottom of the metal bearing and that the yoke plate may be grounded. Newberg teaches the endshield that can be formed from an appropriately cast aluminum material and the hub whose lower end is turned inwardly to provide

the bearing support means in the form of the annular support lip to receive and support the outer race of the annular ball bearing member. Shiraishi teaches the centrifugal contact point which is attached to the protrusion of the shaft and that also contacts the end cover when the rotary electric machine is at rest or is running at speeds close to rest, namely just at the moment of starting. Shirashi also teaches that as the running speed of the shaft gradually increases, the curvature of the contact point decreases due to the centrifugal force and that the contact point separates from the end cover, and the grounding circuit therethrough is broken. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicant requests that the Section 103 rejection of Claims 8 and 16-23 be withdrawn.

Moreover, Claim 8 depends from independent Claim 7 which recites an electric motor assembly comprising “a motor housing; a stator mounted in said housing and comprising a bore therethrough; a rotor core rotatably mounted in said housing and extending through said stator bore; a rotor shaft extending through said rotor core; an inner bearing cap radially aligned with said rotor shaft, said inner bearing cap having an inner end and an outer end, said inner end in close proximity to said rotor shaft; and a charge concentrator disposed on said rotor shaft, said charge concentrator positioned between said rotor shaft and said inner end, said charge concentrator comprising a sharp edge, said charge concentrator separated from said inner bearing cap by a clearance configured to facilitate a current flow between said rotor shaft and said stator.”

None of Sakashita, Newberg, and Shiraishi, considered alone or in combination, describe or suggest a bearing current reduction assembly as recited in Claim 7. Specifically, none of Sakashita, Newberg, and Shiraishi, considered alone or in combination, describe or suggest a charge concentrator disposed on the rotor shaft, where the charge concentrator is positioned between the rotor shaft and the inner end, the charge concentrator includes a sharp edge, and the charge concentrator is separated from the inner bearing cap by a clearance configured to facilitate a current flow between the rotor shaft and the stator. Rather, Sakashita describes a yoke plate

that extends into the inside of a through hole. Sakashita also describes that the end surface of the yoke plate is brought in contact with a bottom of the metal bearing and that the yoke plate may be grounded. Newberg describes the endshield that can be formed from an appropriately cast aluminum material and the hub whose lower end is turned inwardly to provide the bearing support means in the form of the annular support lip to receive and support the outer race of the annular ball bearing member. Shiraishi describes the centrifugal contact point which is attached to the protrusion of the shaft and that also contacts the end cover when the rotary electric machine is at rest or is running at speeds close to rest, namely just at the moment of starting. Shirashi also describes that as the running speed of the shaft gradually increases, the curvature of the contact point decreases due to the centrifugal force and that the contact point separates from the end cover, and the grounding circuit therethrough is broken. Accordingly, none of Sakashita, Newberg, and Shiraishi, considered alone or in combination, describe or suggest a charge concentrator disposed on the rotor shaft, where the charge concentrator includes a sharp edge, and the charge concentrator is separated from the inner bearing cap by a clearance configured to facilitate a current flow between the rotor shaft and the stator. For the reasons set forth above, Claim 7 is submitted to be patentable over Sakashita and Newberg, and further in view of Shirashi.

When the recitations of Claim 8 are considered in combination with the recitations of Claim 7, Applicant submits that dependent Claim 8 likewise is patentable over Sakashita and Newberg, and further in view of Shirashi.

Claim 16 recites a bearing current reduction assembly comprising “a rotor shaft; a bearing supporting said rotor shaft; an inner bearing cap substantially radially aligned with said rotor shaft, said inner bearing cap including an inner end and an outer end, said inner end spaced from said rotor shaft; and a charge concentrator extending from shaft, said charge concentrator including a sharp edge, said charge concentrator separated from said inner bearing cap by a clearance between said charge concentrator and said rotor shaft, and said clearance configured to facilitate a current flow between said rotor shaft and a stator.”

None of Sakashita, Newberg, and Shiraishi, considered alone or in combination, describe or suggest a bearing current reduction assembly as recited in

Claim 16. Specifically, none of Sakashita, Newberg, and Shiraishi, considered alone or in combination, describe or suggest a charge concentrator extending from shaft, where the charge concentrator includes a sharp edge, the charge concentrator is separated from the inner bearing cap by a clearance between the charge concentrator and the rotor shaft, and the clearance is configured to facilitate a current flow between the rotor shaft and a stator. Rather, Sakashita describes a yoke plate that extends into the inside of a through hole. Sakashita also describes that the end surface of the yoke plate is brought in contact with a bottom of the metal bearing and that the yoke plate may be grounded. Newberg describes the endshield that can be formed from an appropriately cast aluminum material and the hub whose lower end is turned inwardly to provide the bearing support means in the form of the annular support lip to receive and support the outer race of the annular ball bearing member. Shiraishi describes the centrifugal contact point which is attached to the protrusion of the shaft and that also contacts the end cover when the rotary electric machine is at rest or is running at speeds close to rest, namely just at the moment of starting. Shirashi also describes that as the running speed of the shaft gradually increases, the curvature of the contact point decreases due to the centrifugal force and that the contact point separates from the end cover, and the grounding circuit therethrough is broken. Accordingly, none of Sakashita, Newberg, and Shiraishi, considered alone or in combination, describe or suggest the charge concentrator separated from the inner bearing cap by a clearance between the charge concentrator and the rotor shaft, where the clearance is configured to facilitate a current flow between the rotor shaft and a stator. For the reasons set forth above, Claim 16 is submitted to be patentable over Sakashita and Newberg, and further in view of Shirashi.

Claim 23 has been canceled. Claims 17-22 depend on independent Claim 16. When the recitations of Claims 17-22 are considered in combination with the recitations of Claim 16, Applicant submits that dependent Claims 17-22 likewise are patentable over Sakashita and Newberg, and further in view of Shirashi.

For at least the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 8 and 16-23 be withdrawn.

Newly added Claim 24 depends from independent Claim 7, which is submitted to be in condition for allowance and is patentable over the cited art. For at least the

reasons set forth above, Applicant respectfully submits that Claim 7 is also patentable over the cited art.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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